

Beam Development RSVP Review Status Sheet

Date: 13-Jan-05

WBS No. 1.4.1.6

Title: Beam Development

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Current Cost Est.(FY05 \$M) \$14.35

Assigned Contingency % 0%

Cost Elements (FY05 \$M) assumes a 5 year construction effort

Effort	\$4.78
Matls	\$4.17
Ohd	\$2.70
Power	\$2.69
Conting	\$0.00
Total	<u>\$14.35</u>

WBS Dictionary Definition: This effort provides resources to develop AGS beams to match experiment requirements. Resources include a 14 FTE supplement to current RHIC operations and support personnel as well as covers incremental costs for power, materials and laboratory distributed technical services. This does not supply sufficient resources for full operation of experiments.

Technical Level of Confidence: (choose one)

Prototype Demonstrated	<u> </u>	Elements Built & Tested	<u> </u>
Similar System Exists	<u>x</u>	Similar Technology Works	<u> </u>
Novel System Concept	<u> </u>	No Candidate Concept Yet	<u> </u>
Other (Comment)	<u> </u>		

Basis of the Cost Estimate: (by percentage of total cost: sum of fractions = 100%)

Commercial Product	<u>0%</u>	Engineered Design	<u>0%</u>
Engineered Conceptual	<u>0%</u>	Past AGS SEB costs	<u>50%</u>
Guess	<u>20%</u>	Known Personnel Costs	<u>30%</u>
		Total	<u>100%</u>

Status of Hardware/Software Development:

(1) AGS/Booster not ready for high intensity operation, component repair/replacement, radiation caps needed - 2-3 years of work

(2) K0PI0 (25 MHZ) and MECO specific modifications to the AGS should be available in third year of RSVP construction (1st year of beam development). K0pi) 100 MHz cavity available later (if needed).

Issues (funding, collaborator shortage, engineering help, etc.):

- Overall plan integrating machine and experiment needs is still being developed - some things will likely not be done during the 3 year development time and will have to be done during physics operations period.
- K0PI0 beam intensity/spill is ~40% above previously achieved.
- MECO beam intensity per AGS RF bucket is ~100% above previously achieved levels and protons/second is ~100% above present AGS/Booster ALARA limits (component activation issue).
- Both experiments require special beam bunching with between bunch extinction requirements that may be difficult to achieve, especially with high intensity.